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# EFFECTS OF COVID-19 PANDEMICS ON SYMPTOMS AND QUALITY OF LIFE IN PATIENTS AFFECTED BY INTERSTITIAL CYSTITIS/ PAINFUL BLADDER SYNDROME (IC/PBS) AND IRRITABLE BOWEL SYNDROME (IBS)

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**HYPOTHESIS / AIMS OF STUDY**
Interstitial Cystitis (IC), also known as Painful Bladder Syndrome (BPS), is a chronic painful bladder condition characterized by persistent unpleasant sensations attributable to the bladder, of which the most consistent feature is an increase in discomfort with bladder filling and a relief with voiding. IC/PBS often coexists with other chronic pain syndromes such as irritable bowel syndrome (IBS). IBS is a chronic functional disorder of the gastrointestinal tract characterized by chronic abdominal pain and altered bowel habits. Both IC/BPS and IBS do not have a certain aetiology and are characterized by chronic relapsing course. There is a positive correlation between the incidence of this association and increased healthcare seeking, reduction in quality of life, and higher levels of mood disorders, which suggests a common underlying pathophysiology. Furthermore, exacerbations of IBS and IC/BPS symptoms have been associated to acute stressful life events. Those determine a high prevalence of anxiety, depression and stress, chronic reduction in coping capacity and endurance of pain and fatigue. The COVID-19 pandemic has led to unprecedented disruptions in healthcare. During the first months of the pandemic, mental health was influenced by various vulnerability factors and stressors, led alone in patients affected by chronic diseases such as IC/BPS and IBS. One of the most evident psychological consequences of Coronavirus was the deterioration of quality of life of those patients, as their daily life is dominated by management of sphincter functions and pain. The aim of this study was to observe the changes that the covid19 lockdown brought in terms of symptoms and quality of life.

**STUDY DESIGN, MATERIALS AND METHODS**
We here present a prospective observational study conducted in our referral center from March 2020 to June 2020. We enrolled patients diagnosed with CI/BPS and IBS, referred to our outpatient clinic in the previous year. Ethical committee approval was obtained, and patients signed an informed consent. All patients had previously undergone a complete urogynecological evaluation and had completed the following questionnaires: Gastrointestinal Symptom Rating Scale (GSRS), Bristol Stool Chart (BSC), Euro - QoL Visual Analogue Scale (EQ-VAS), State-Trait Anxiety Inventory STAI-Y1 and STAI-Y2, Psychological General Well-Being Index (PGWBI), Hospital Anxiety and Depression Scale (HADS), General Self-Efficacy (GSE), Connor-Davidson (CD-RISC), O'Leary-Sant IC Symptom Index (ICSI) and IC Problem Index (ICPI). Enrolled patients completed the same questionnaires between March 2020 and May 2020, during the lockdown. Between June and July 2020, all patients underwent a second urogynecological examination.

Our primary endpoint was to evaluate the extent of exacerbation of symptoms of IC/PBS and IBS caused by the COVID19 pandemic. Our secondary endpoint was to assess the effectiveness of remote management of these patients during those months through the administration of questionnaires. We included patients with clinical and histological diagnosis of PBS / CI and IBS. Exclusion criteria included: age $<18$ years, patients unable to provide informed consent, malignancies, previous diagnosis of major depressive disorder, chronic use of opioids.

**RESULTS**
Twenty-eight patients affected by IC/BPS and IBS were included in this study. Patient demographics are shown in table 1. In Table 2, all results regarding the questionnaires and physical examination are reported at T0 (before the covid-19 pandemic), and at T1 (during lockdown). The EQ-VAS values evaluated at T0 and T1 were compared, and no statistical significance was noted. We assessed the presence of GI symptoms by analysing the Bristol Stool Chart (BSC) and the Gastrointestinal Symptom Rating Scale (GSRS). Twelve patients reported having stool type compatible with irritable bowel syndrome (IBS) at T0, whilst at T1 15 patients fit into this category, although the rise did not reach statistical significance. As for GSRS results, average score reported by patients showed that 14 out of 28 patients (42.9%) had a score higher than the cut-off at t0, while 16 patients reached the same scores at T1, without statistical difference. As for the psychometric assessment of patients with PBS / CI, we used six different tests: STAI-Y1, STAI-Y2, PGWBI, HADS, GSE and CD-RISC. We compared the specific scores evaluated at T0, before the COVID-19 pandemic struck, with the results of the same scores at T1 corresponding to the period of full lockdown. No statistical significant difference was noted. On the other hand, the results regarding the O'Leary-Sant IC Symptom Index (ICSI) and IC Problem Index (ICPI) showed higher scoring after the lockdown, reaching statistical significance. In accordance with this result, patients reported an increase in frequency during lockdown, that proved to be statistically significant. Furthermore, the urogynecological physical exam performed after the end of the lockdown showed an increase in pain using the VAS scale evoked by muscle palpation, as well as higher severity of pelvic floor muscles hypertonicity.

**INTERPRETATION OF RESULTS**
The statistical differences between the psychometric assessment as well as the gastrointestinal symptoms turned out to be non significant, which drove us to the conclusion that psychological profile of PBS/IC patients was not highly influenced by lockdown. On the other hand, a small increase in psychological and GI symptoms was noted, so the small number of patients included might have influenced the results. On the other hand, the results regarding the O'Leary-Sant IC Symptom Index (ICSI) and IC Problem Index (ICPI) indicated a worsening in urinary symptoms and a higher perception of IC as a problem in daily life during lockdown. This was also confirmed by the urogynecological evaluation, that showed a higher pelvic floor muscles contraction and higher pain perception.

**CONCLUDING MESSAGE**
In conclusion, remote management through questionnaires seems to be an effective tool to show any worsening in symptoms in patients with disabling conditions such as IC/PBS and IBS, to avoid delays in medical care.

In our experience, IC/PBS symptoms seem to have worsened during those months of isolation and forced home stay, even though the small number of patients included might have underestimated its impact on their quality of life.

**FIGURE 1**

**TABLE 1 - DEMOGRAPHICS**

| Characteristics (n=28) | Mean±SD |
|---|---|
| Age, years | 48,5±11,7 |
| Weight (Kg) | 65,6±12,4 |
| Height (cm) | 164,2±6,8 |
| BMI (Kg/ m²) | 24,2±3,7 |
| Number of comorbidities | 2,7±3,0 |
| Number of previous surgeries | 2,5±1,6 |

**Table 1**

**FIGURE 2**
**TABLE 2 - RESULTS**

| SCORE | MEAN T0 +- SD | MEAN T1 +- SD | P VALUE |
|---|---|---|---|
| EQ-VAS (normal range >70) | 55.2 ± 23.9 | 56.9 ± 20.1 | > 0.05 |
| STAI Y1 (normal range <40) | 42.5 ± 7.69 | 40.3 ± 7.1 | > 0.05 |
| STAI Y2 (normal range <40) | 44.3 ± 5.3 | 44.25 ± 5.3 | > 0.05 |
| HADS (normal range <11) | 18.2 ± 4.8 | 17.9 ± 4.9 | > 0.05 |
| PGWBI (normal range >70) | 54.1 ± 20.5 | 53.7 ± 22.2 | > 0.05 |
| CD RISC (normal range >40) | 62.1 ± 8.7 | 61.8 ± 11.2 | > 0.05 |
| GSE (normal range >20) | 27.3 ± 5.6 | 27.9 ± 7.2 | > 0.05 |
| BSC (% of type 1/2/5/6) | 12/28 (42.9%) | 15/28 (53.6%) | > 0.05 |
| GSRS (normal range >22.5) | 14/28 (50%) | 16/28 (57.1%) | > 0.05 |
| ICSI | 8.9 ± 4.4 | 12.3 ± 3.4 | **< 0.05** |
| ICPI | 7.7 ± 4.6 | 11.4 ± 3.0 | **< 0.05** |
| Frequency | 8.25 ± 2.47 | 13.57 ± 2.97 | **< 0.05** |
| VAS at pelvic floor examination | 3.46 ± 1.95 | 5.45 ± 2.27 | **< 0.05** |
| PC TEST | 1.54 ± 1.10 | 1.57 ± 1.4 | >0.05 |

**Table 2**

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